T080/0 9E07E860

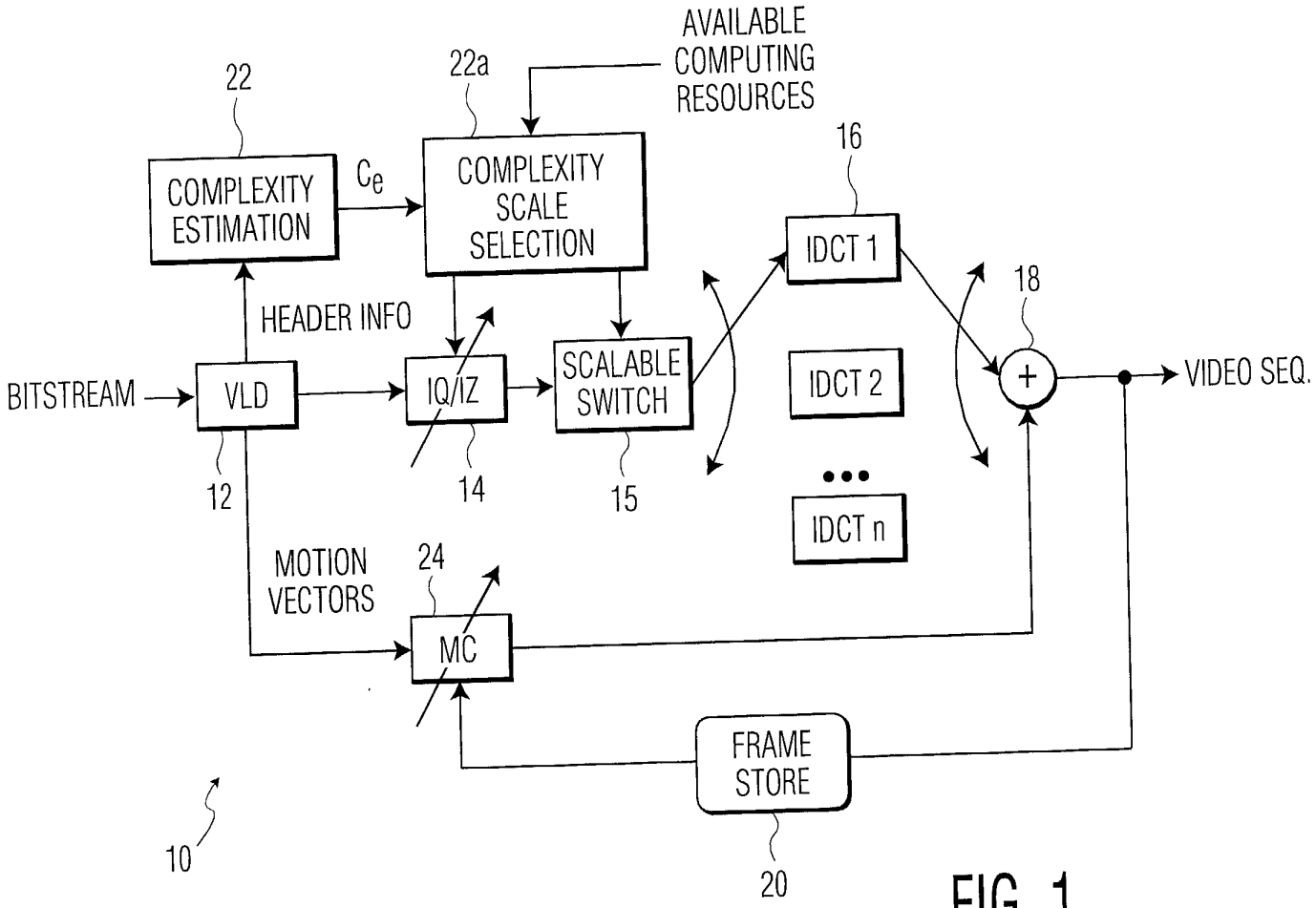

FIG. 1

#3

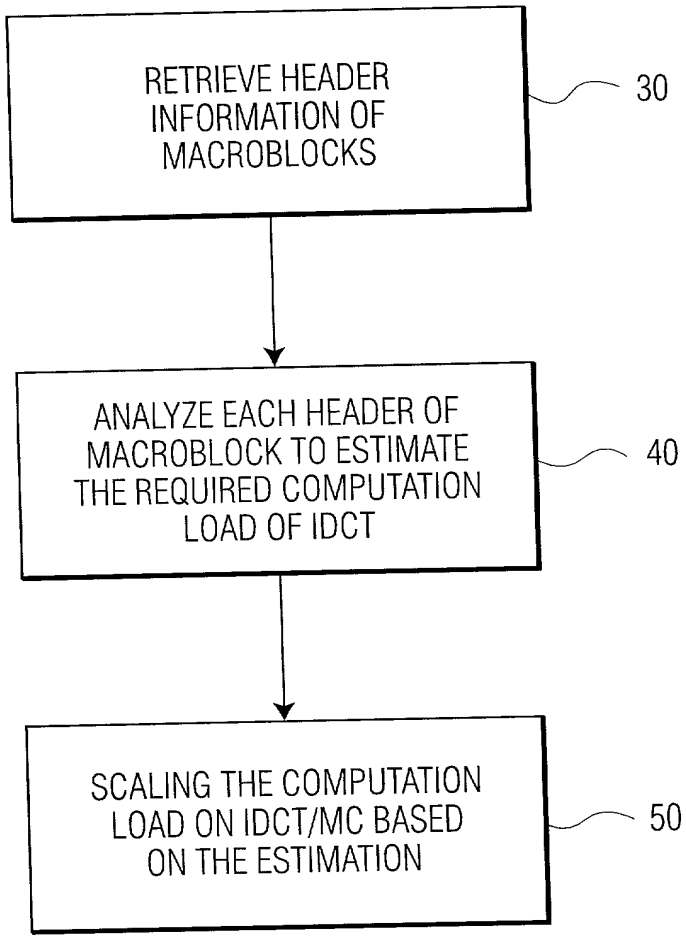

FIG. 2

Electronic Copy

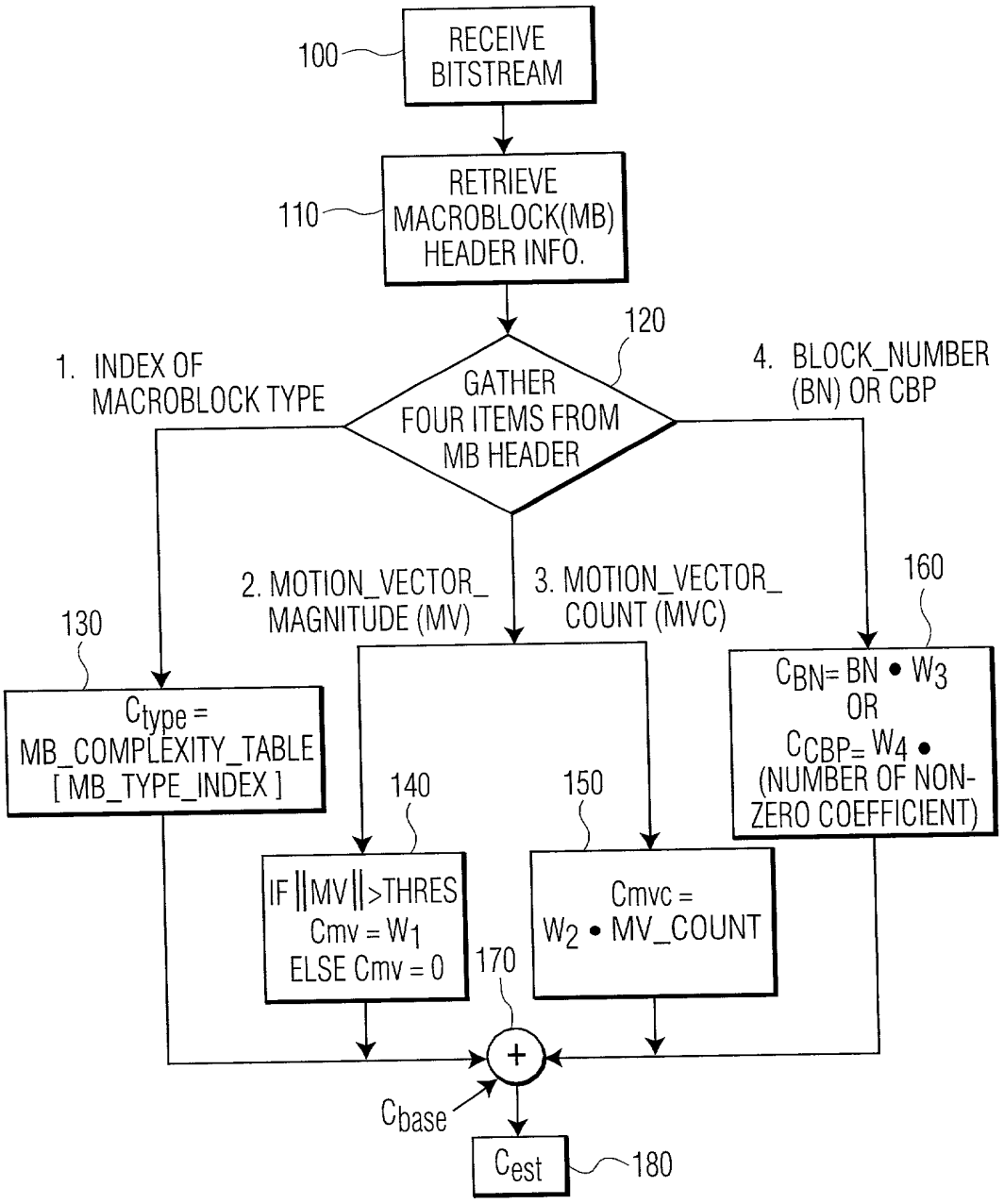
100
RECEIVE BITSTREAM
110
RETRIEVE MACROBLOCK(MB) HEADER INFO.
120
GATHER FOUR ITEMS FROM MB HEADER
1. INDEX OF MACROBLOCK TYPE
2. MOTION_VECTOR_ MAGNITUDE (MV)
3. MOTION_VECTOR_ COUNT (MVC)
4. BLOCK_NUMBER (BN) OR CBP
130
Ctype = MB_COMPLEXITY_TABLE [MB_TYPE_INDEX]
140
IF ||MV||>THRES Cmv = W1 ELSE Cmv = 0
150
Cmvc = W2 • MV_COUNT
160
CBN= BN • W3 OR CCBP= W4 • (NUMBER OF NON-ZERO COEFFICIENT)
170
+
Cbase
Cest
180

FIG. 3

T080/0 98D/E860

MACROBLOCK TYPE	MACROBLOCK_ QUANT	MACROBLOCK_ MOTION FORWARD	MACROBLOCK_ MOTION_ BACKWARD	MACROBLOCK_ PATTERN	MACROBLOCK_ INTRA	VLC
INTRA					1	1
INTRA, MACROBLOCK_QUANT					1	01

FIG. 4a

MACROBLOCK TYPE	MACROBLOCK_ QUANT	MACROBLOCK_ MOTION FORWARD	MACROBLOCK_ MOTION_ BACKWARD	MACROBLOCK_ PATTERN	MACROBLOCK_ INTRA	VLC
MC_CODED		1		1		1
NO MC, CODED				1		01
MC NOT CODED		1				001
INTRA					1	00011
MC, CODED, MACROBLOCK_QUANT	1	1		1		00010
NO MC, CODED, MACROBLOCK_QUANT		1		1		00001
INTRA, MACROBLOCK_QUANT	1				1	000001

FIG. 4b

MACROBLOCK TYPE	MACROBLOCK_ QUANT	MACROBLOCK_ MOTION FORWARD	MACROBLOCK_ MOTION_ BACKWARD	MACROBLOCK_ PATTERN	MACROBLOCK_ INTRA	VLC
MC INTERPOLATED, NOT CODED		1	1			10
MC INTERPOLATED, CODED		1	1	1		11
MC BACKWARD, NOT CODED			1			010
MC BACKWARD, CODED			1	1		011
MC FORWARD, NOT CODED		1				0010
MC FORWARD, CODED		1		1		0011
INTRA					1	0001 1
MC INTERPOLATED, CODED MACROBLOCK_QUANT	1	1	1	1		0001 0
MC FORWARD, CODED MACROBLOCK_QUANT	1	1		1		0000 11
MC BACKWARD, CODED MACROBLOCK_QUANT	1		1	1		0000 10
INTRA, MACROBLOCK_QUANT	1				1	0000 01

FIG. 4c

MACROBLOCK (MB) COMPLEXITY TABLE

MB-TYPE	MB-TYPE-INDEX	WEIGHT CODE
INTRA	0 0	0
NOT MC, CODED	0 1	W
MC, NOT CODED	1 0	2W
MC, CODED	1 1	3W

FIG. 5

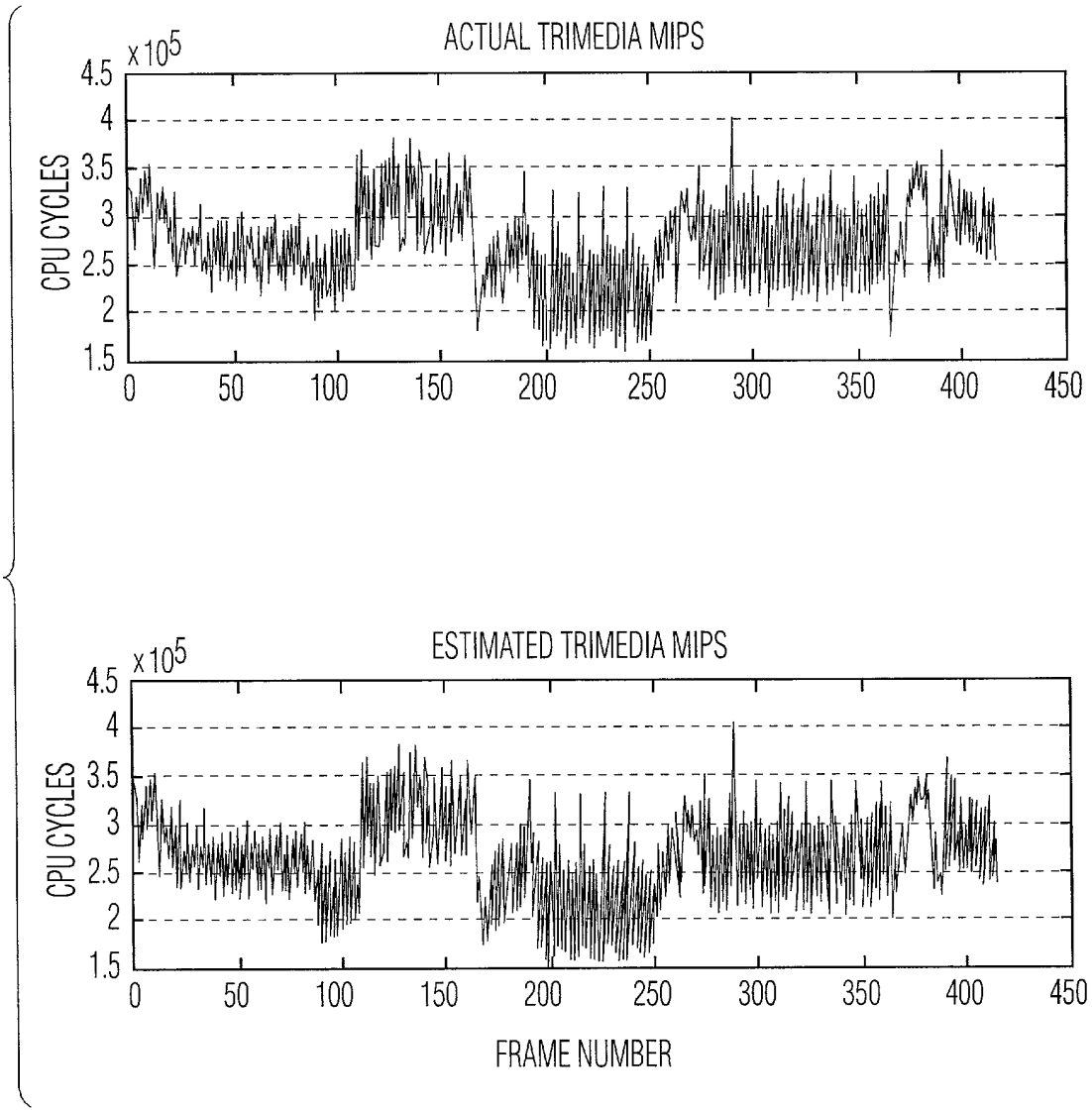
ACTUAL TRIMEDIA MIPS
x 10^5
CPU CYCLES
4.5
4
3.5
3
2.5
2
1.5
0
50
100
150
200
250
300
350
400
450
ESTIMATED TRIMEDIA MIPS
x 10^5
CPU CYCLES
4.5
4
3.5
3
2.5
2
1.5
0
50
100
150
200
250
300
350
400
450
FRAME NUMBER

FIG. 6a

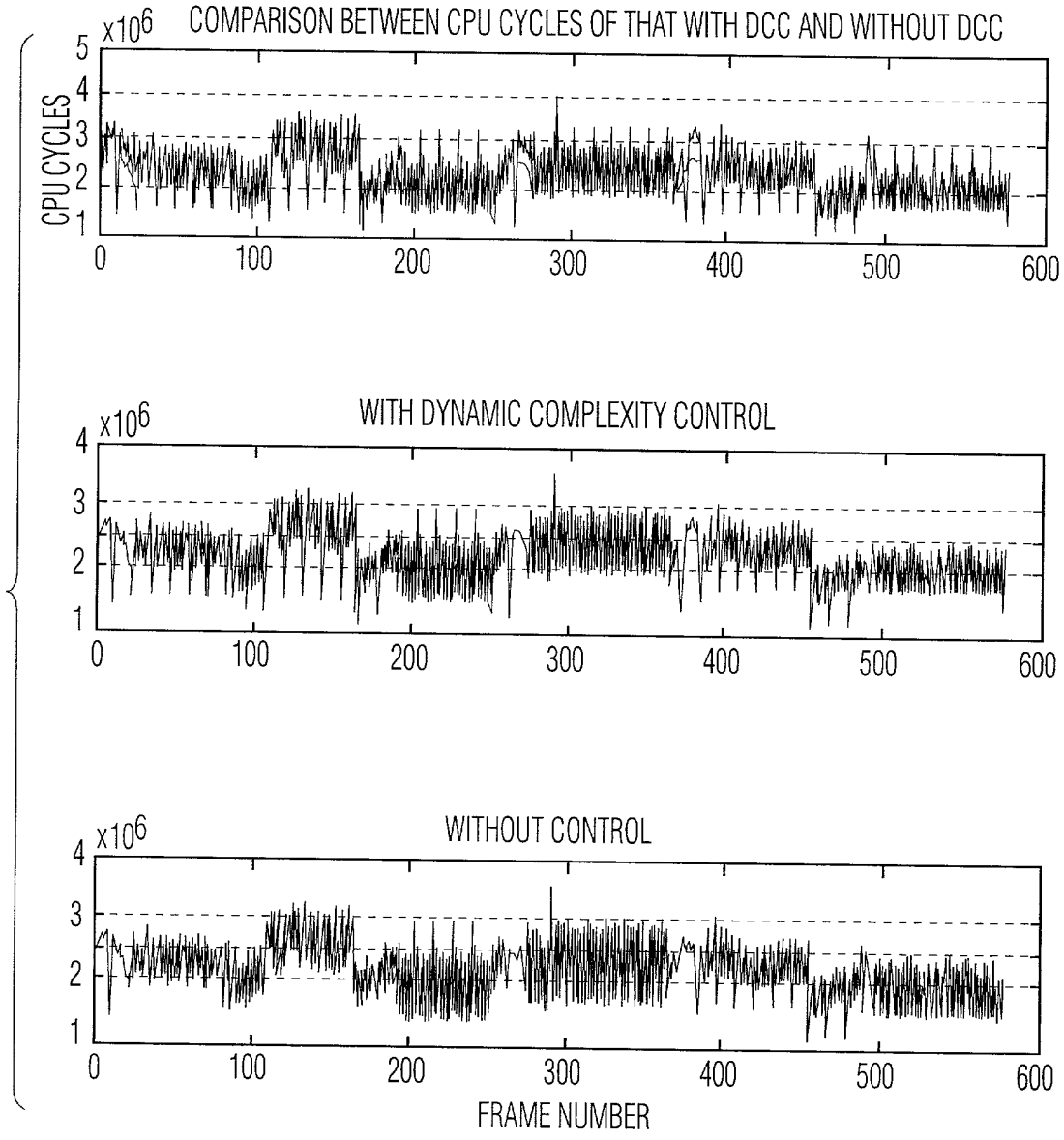
COMPARISON BETWEEN CPU CYCLES OF THAT WITH DCC AND WITHOUT DCC
x10^6
CPU CYCLES
5
4
3
2
1
0
100
200
300
400
500
600
WITH DYNAMIC COMPLEXITY CONTROL
x10^6
4
3
2
1
0
100
200
300
400
500
600
WITHOUT CONTROL
x10^6
4
3
2
1
0
100
200
300
400
500
600
FRAME NUMBER

FIG. 6b